

# COLUMBINE LOGGING

Scale: 5" / 100'  
Measured Depth Log

**Well Name** Fiducial 6-62-34 4841 BH2

**Location** NWSW Sec 34-T6N-R62W

**State** CO

**County** Weld

**Country** USA

**Rig Number** NABORS M22

**API Number** 05-123-39262

**AFE #** 18776D

**Region** DJ Basin

**Field** Wattenberg

**Spud Date** 8/26/2014

**Drilling Completed** 9/7/2014

**Surface Coordinates** NWSW Sec 34-T6N-R62W  
2330' FSL, 370' FWL

**Bottom Hole Coordinates** Projected:  
NESE Sec 35-T6N-R62W  
2156' FSL, 500' FEL

**Ground Elevation** 4657'

**K.B. Elevation** 4709'

**Logged Interval** 4900' To 5836'

**Total Depth** 16141'

**Formation** Shannon

**Type of Drilling Fluid** LSND

## Other Symbols

### Oil Show

- DEAD
- EVEN
- QUESTIONABLE
- SPOTTED STAINING

### Porosity

- E EARTHY
- F FENESTRAL
- F FRACTURE
- X INTERCRYSTALLINE
- INTEROOLITIC
- MOLDIC

ORGANIC

P PINPOINT

V VUGGY

### Engineering

- BIT CHANGE
- CONNECTION (LEFT)
- CONNECTION (RIGHT)
- CONNECTION GAS
- TRIP GAS
- DOWN TIME GAS
- CORE - LOST
- CORE - RECOVERED
- DST INTERVAL



FAULT



FORMATION TOP



GAS SHOW



OIL SHOW



MN DEPTH



MN DEPTH (RIGHT)



NORMAL FAULT



OVERTURNED STRATA



REVERSE FAULT



CASING



SIDEWALL CORE (LEFT)



SIDEWALL CORE (RIGHT)



SLIDE



SURVEY



DRILL STEM TEST



WIRELINE TESTED - LEFT



WIRELINE TESTED - RT

### Rounding

- ANGULAR
- ROUNDED
- SUBANG
- SUBRND

### Textures

- BOUNDSTONE
- CHALKY
- CRYPTOXLN

E EARTHY

FINELYXLN

GRAINSTONE

L LITHOGRAPHIC

MX MICROXLN

MS MUDSTONE

PS PACKSTONE

WS WACKSTONE

### Sorting

- M MODERATE
- P POOR
- W WELL

## Accessories

### Fossils

GASTROPOD

INOCERAMUS

ARGILLITE GRAIN

B BENTONITE

HEAVY MINERAL

K KAOLIN

### Stringer

ALGAE  
AMPHIPORA  
BELEMNITE  
BIOCLASTIC  
BRACHIOPOD  
BRYOZOA  
CEPHALOPOD  
CORAL  
CRINOID  
ECHINOID  
FISH  
FORAMINIFERA  
FOSSIL

OOLITE  
OSTRACOD  
PELECYPOD  
PELLET  
PISOLITE  
PLANT REMAINS  
PLANT SPORES  
SCAPHOPOD  
STROMATOPOROID

## Minerals

ANHYDRITIC  
ARGILLACEOUS

BITUMENOUS SUBSTANCE  
BRECCIA FRAGMENTS  
CALCAREOUS  
CARBONACEOUS FLAKES  
CHTDK  
CHTLT  
COAL - THIN BEDS  
DOLOMITIC  
FELDSPAR  
FERRUGINOUS PELLET  
FERRUGINOUS  
GLAUCONITE  
GYPSIFEROUS

MARCASITE  
MARLSTONE  
MICACEOUS  
MINERAL CRYSTALS  
NODULES  
PHOSPHATE PELLETS  
PYRITE  
SALT CAST  
SANDY  
SIDERITE  
SILICEOUS  
SILTY  
TUFFACEOUS

ANHYDRITE STRINGER  
BENTONITE STRINGER  
COAL STRINGER  
DOLOMITE STRINGER  
GYPSUM STRINGER  
LIMESTONE STRINGER  
MARLSTONE (CALC) STRG  
MARLSTONE (DOL) STRG  
SANDSTONE STRINGER  
SHALE STRINGER  
SILTSTONE STRINGER

## Rock Types

UNKNOWN  
ANHYDRITE  
BENTONITE  
BRECCIA  
CEMENT  
CHALK  
CHERT  
CLAY CHOKE SAND  
CLAYSTONE

COAL  
CONGLOMERATE  
DOLOMITE  
DOLOMITIC LIMESTONE  
GRANITE  
GYPSUM  
IGNEOUS  
LIMESTONE  
SIDERITE or LIMONITE

MARLSTONE  
METAMORPHIC  
NO SAMPLE  
SALT  
SALT- PEPPER SAND  
SANDSTONE  
SHALE  
SHALE COLORED  
SHALE GRAY

SHALY SANDSTONE  
SHALY SILTSTONE  
SILTSTONE  
SILTY SHALE  
TILL  
TUFF  
WELDED TUFF

## Operator

**Company** Bill Barrett Corp.

**Address** 1099 18th Street, Suite 2300  
Denver, CO 80202

## Geologist

**Name** Scott Hayes

**Company** Bill Barrett Corp.

**Address** 1099 18th Street, Suite 2300  
Denver, CO 80202

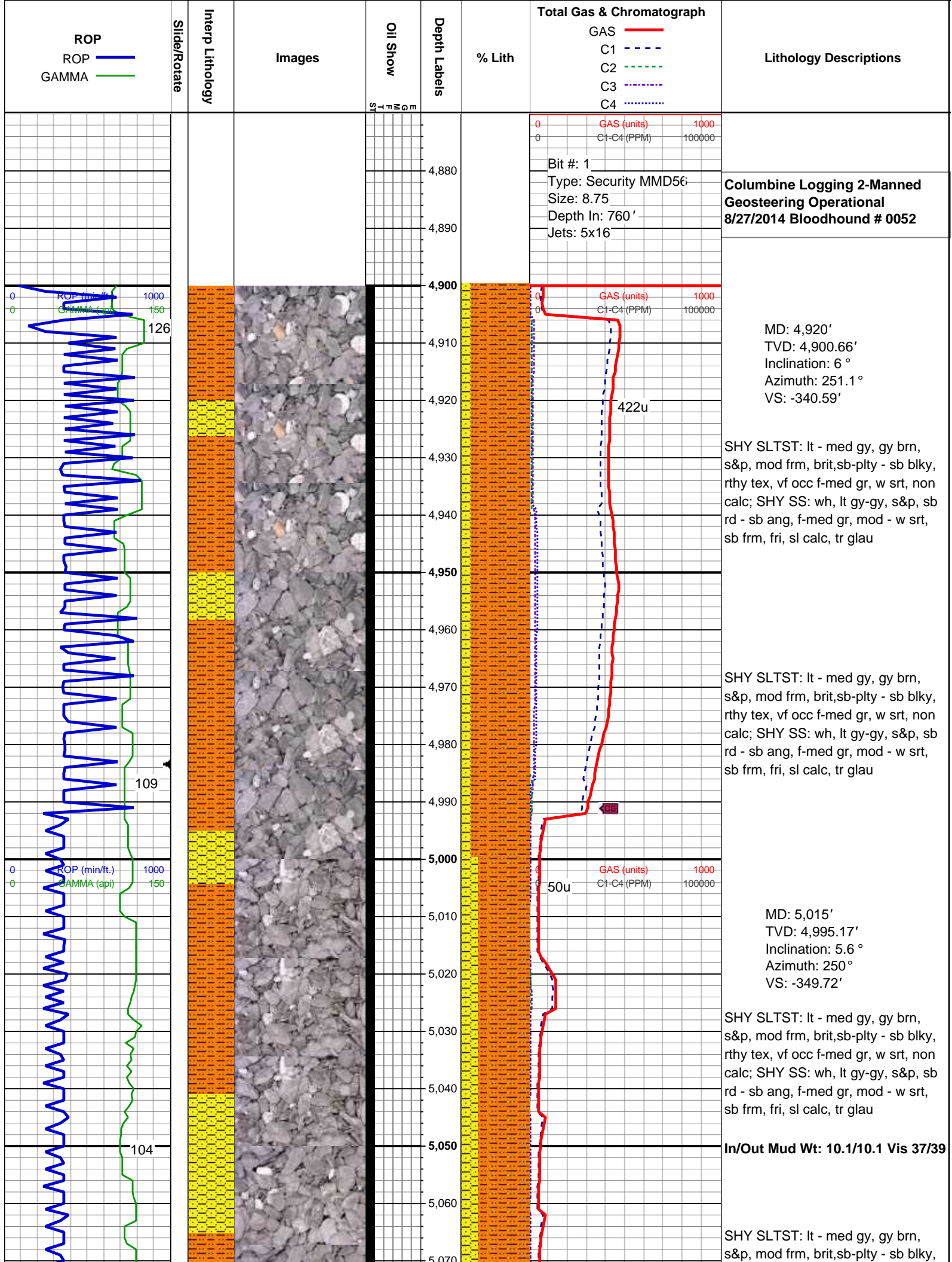
## Zone Color Coding

|       |            |          |
|-------|------------|----------|
| Oil   | Condensate | Gas      |
| Note  | Core       | Pressure |
| Error | Water      | Seal     |

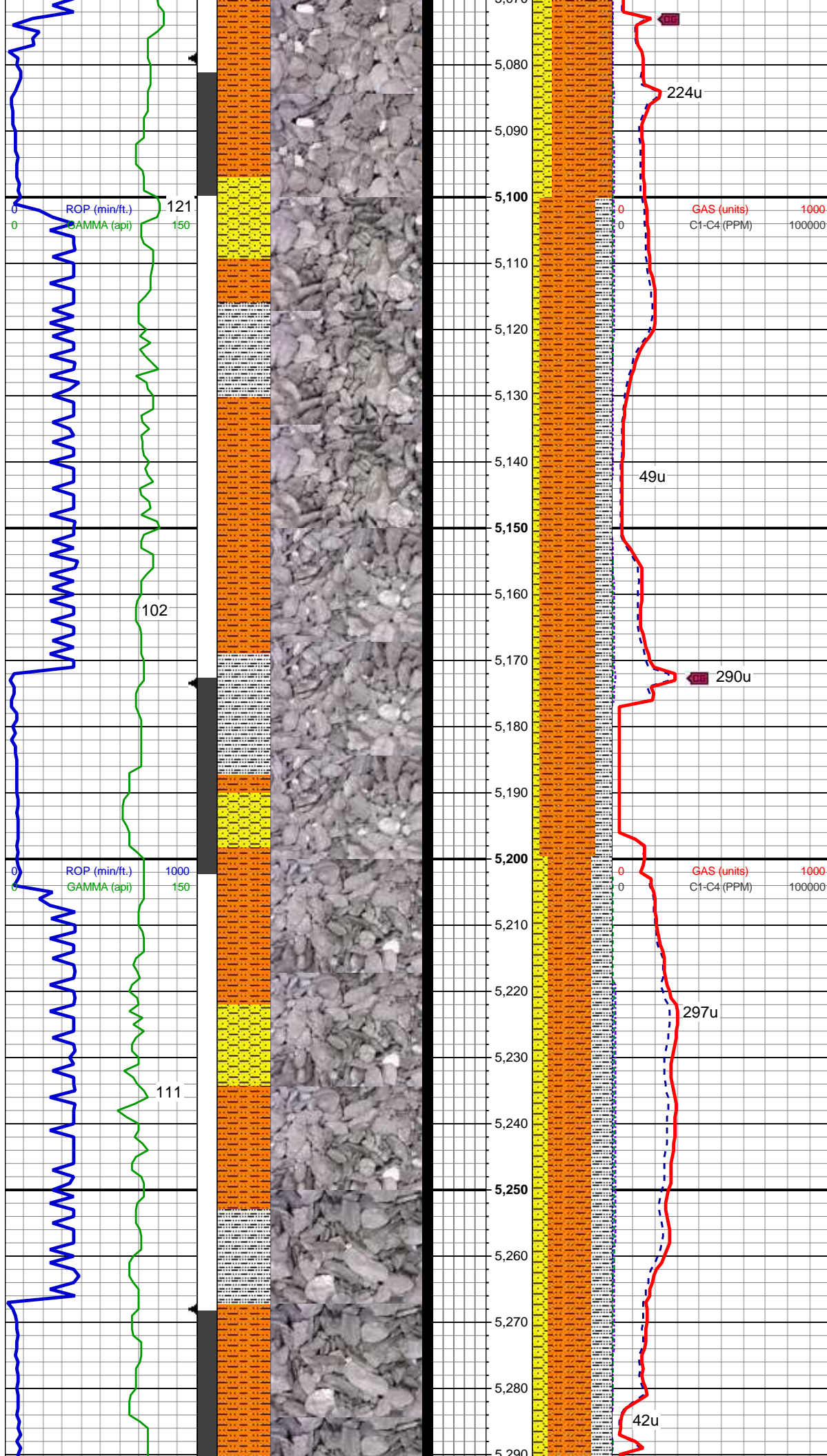
## Other

**Charles Trodick** Senior Wellsite Geologist

**Mark Raimo** Senior Wellsite Geologist







rthy tex, vf occ f-med gr, w srt, non calc; SHY SS: wh, lt gy-gy, s&p, sb rd - sb ang, f-med gr, mod - w srt, sb frm, fri, sl calc, tr glau

MD: 5,110'  
TVD: 5,089.83'  
Inclination: 4 °  
Azimuth: 247.3 °  
VS: -357.21'

SHY SLTST: lt - med gy, gy brn, s&p, mod frm, brit,sb-plty - sb blk, rthy tex, vf occ f-med gr, w srt, non calc; SHY SS: wh, lt gy-gy, s&p, sb rd - sb ang, f-med gr, mod - w srt, sb frm, fri, sl calc, tr glau SLTY SH: lt - dk gy, sft - frm, sb plty - sb blk, rthy tex, non calc

In/Out Mud Wt: 10.15/10.25 Vis 36/39

SHY SLTST: lt - med gy, gy brn, s&p, mod frm, brit,sb-plty - sb blk, rthy tex, vf occ f-med gr, w srt, non calc; SHY SS: wh, lt gy-gy, s&p, sb rd - sb ang, f-med gr, mod - w srt, sb frm, fri, sl calc, tr glau SLTY SH: lt - dk gy, sft - frm, sb plty - sb blk, rthy tex, non calc

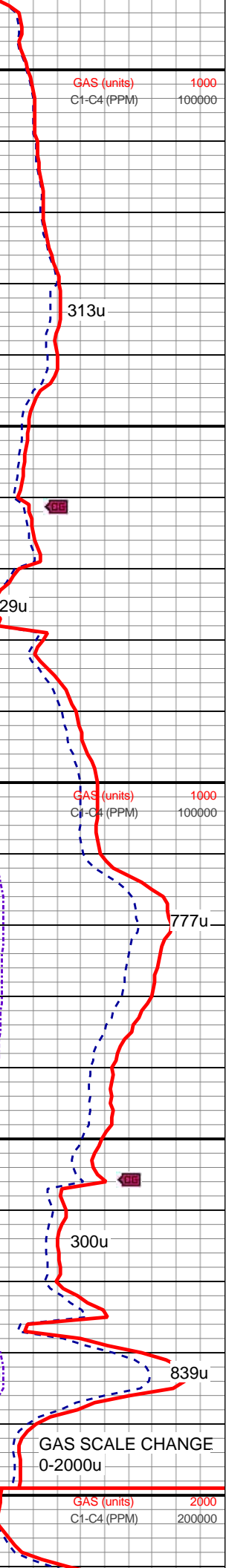
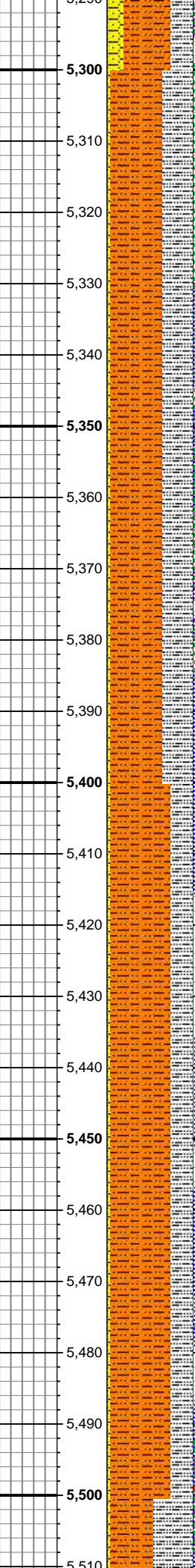
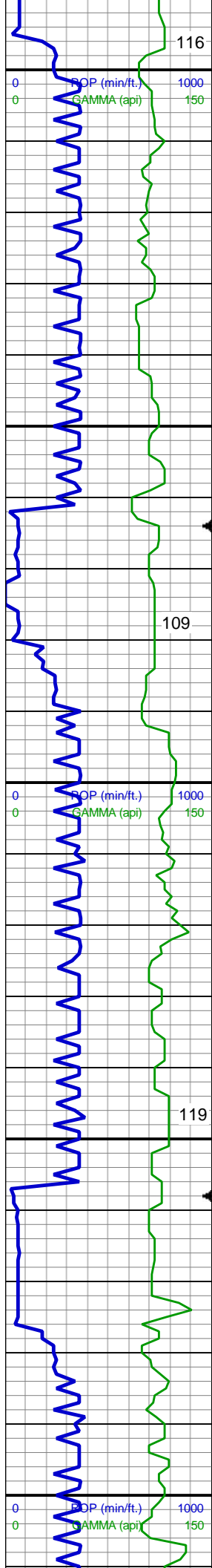
MD: 5,204'  
TVD: 5,183.68'  
Inclination: 2.7 °  
Azimuth: 286.3 °  
VS: -362.37'

SHY SLTST: lt - med gy, gy brn, s&p, mod frm, brit,sb-plty - sb blk, rthy tex, vf occ f-med gr, w srt, non calc; SHY SS: wh, lt gy-gy, s&p, sb rd - sb ang, f-med gr, mod - w srt, sb frm, fri, sl calc, tr glau SLTY SH: lt - dk gy, sft - frm, sb plty - sb blk, rthy tex, non calc

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MD: 5,300'  
TVD: 5,279.63'





Inclination: 1.5 °  
Azimuth: 350.7 °  
VS: -364.7'

**In/Out Mud Wt: 10.1/10.15 Vis 38/38**

SHY SLTST: lt - med gy, gy brn, s&p, mod frm, brit,sb-plty - sb blk, rthy tex, vf occ f-med gr, w srt, non calc; SHY SS: wh, lt gy-gy, s&p, sb rd - sb ang, f-med gr, mod - w srt, sb frm, fri, sl calc, tr glau SLTY SH: lt - dk gy, sft - frm, sb plty - sb blk, rthy tex, non calc

MD: 5,394'  
TVD: 5,373.61'  
Inclination: 0.4 °  
Azimuth: 57.2 °  
VS: -364.59'

SHY SLTST: lt - med gy, gy brn, s&p, mod frm, brit,sb-plty - sb blk, rthy tex, vf occ f-med gr, w srt, non calc; SHY SS: wh, lt gy-gy, s&p, sb rd - sb ang, f-med gr, mod - w srt, sb frm, fri, sl calc, tr glau SLTY SH: lt - dk gy, sft - frm, sb plty - sb blk, rthy tex, non calc

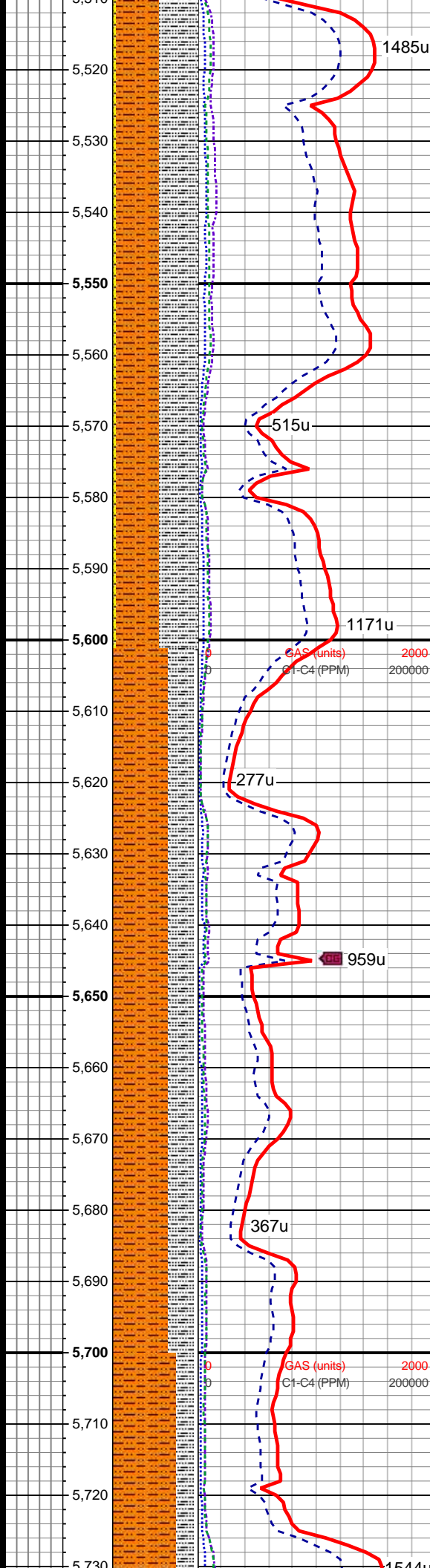
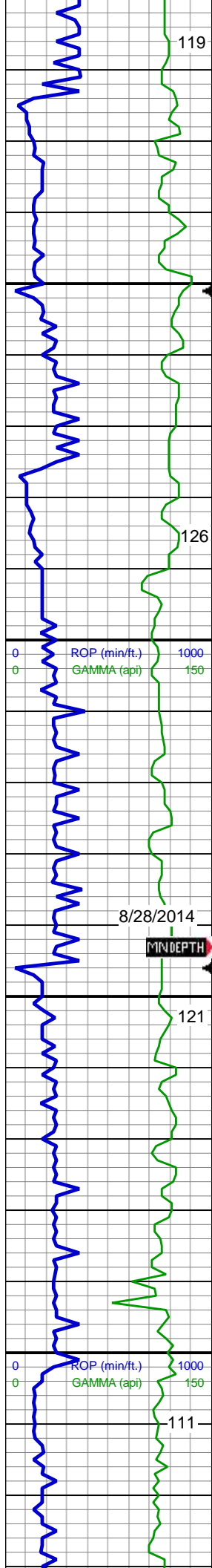
**In/Out Mud Wt: 10.0/10.25 Vis 36/37**

SHY SLTST: lt - med gy, gy brn, s&p, mod frm, brit,sb-plty - sb blk, rthy tex, vf occ f-med gr, w srt, non calc; SHY SS: wh, lt gy-gy, s&p, sb rd - sb ang, f-med gr, mod - w srt, sb frm, fri, sl calc, tr glau SLTY SH: lt - dk gy, sft - frm, sb plty - sb blk, rthy tex, non calc

MD: 5,488'  
TVD: 5,467.61'  
Inclination: 1.2 °  
Azimuth: 316 °  
VS: -364.97'

**GAS SCALE CHANGE 0-2000u**





SHY SLTST: lt - med gy, gy brn, s&p, mod frm, brit,sb-plty - sb blk, rthy tex, vf occ f-med gr, w srt, non calc; SHY SS: wh, lt gy-gy, s&p, sb rd - sb ang, f-med gr, mod - w srt, sb frm, fri, sl calc, tr glau SLTY SH: lt - dk gy, sft - frm, sb plty - sb blk, rthy tex, non calc

In/Out Mud Wt: 10.15/10.2 Vis 35/37

SHY SLTST: lt - med gy, gy brn, s&p, mod frm, brit,sb-plty - sb blk, rthy tex, vf occ f-med gr, w srt, non calc; SHY SS: wh, lt gy-gy, s&p, sb rd - sb ang, f-med gr, mod - w srt, sb frm, fri, sl calc, tr glau SLTY SH: lt - dk gy, sft - frm, sb plty - sb blk, rthy tex, non calc

MD: 5,583'  
TVD: 5,562.58'  
Inclination: 1.5 °  
Azimuth: 319.7 °  
VS: -366.42'

SHY SLTST: lt - med gy, gy brn, s&p, mod frm, brit,sb-plty - sb blk, rthy tex, vf occ f-med gr, w srt, non calc; SLTY SH: lt - dk gy, sft - frm, sb plty - sb blk, rthy tex, non calc, tr SHY SS

SHY SLTST: lt - med gy, gy brn, s&p, mod frm, brit,sb-plty - sb blk, rthy tex, vf occ f-med gr, w srt, non calc; SLTY SH: lt - dk gy, sft - frm, sb plty - sb blk, rthy tex, non calc, tr SHY SS

MD: 5,678'  
TVD: 5,657.55'  
Inclination: 1.3 °  
Azimuth: 319 °  
VS: -367.89'

In/Out Mud Wt: 10.25/10.25 Vis 36/36

SHY SLTST: lt - med gy, gy brn, s&p, mod frm, brit,sb-plty - sb blk, rthy tex, vf occ f-med gr, w srt, non calc; SLTY SH: lt - dk gy, sft - frm, sb plty - sb blk, rthy tex, non calc, tr

